INTERNATIONAL SECURITY AND STRATEGY STUDIES
REPORT

Pre−Research Report:

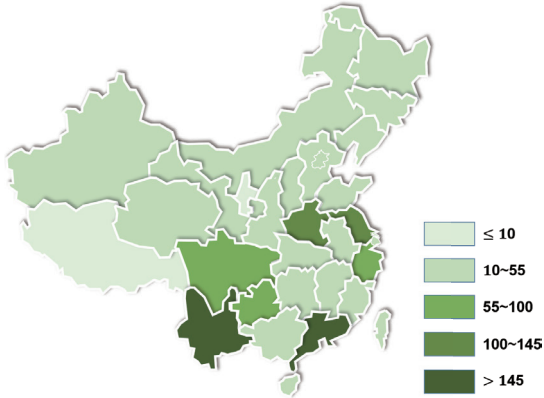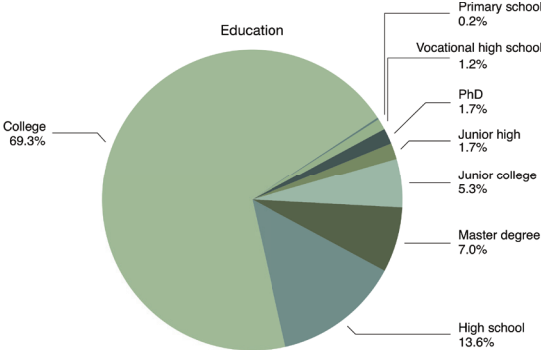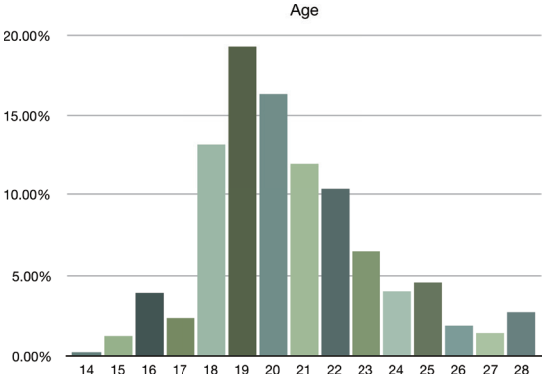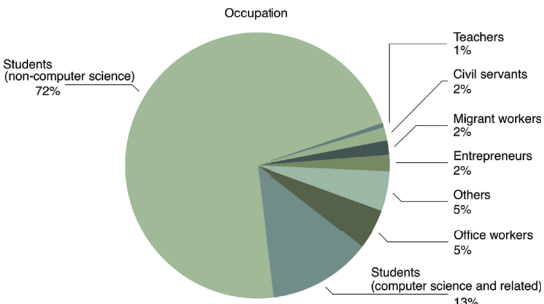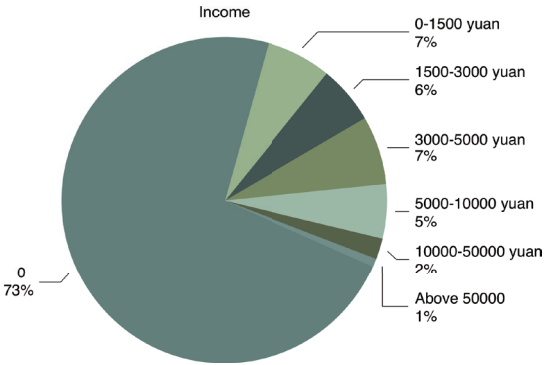## Risks and Governance of AI from the Perspective of Chinese Youth

清华大学战略与安全研究中心

CENTER FOR
INTERNATIONAL SECURITY AND STRATEGY
TSINGHUA UNIVERSITY

This research features a long questionnaire and a short one: the former one contains one more question that requires participants to comment on the future development of artificial intelligence (AI) technology in only one sentence. With the help of fanqier.cn, an online questionnaire platform, a total of 1,491 valid questionnaires are received, among which 738 are long ones and 753 short ones. The occupation, educational background, income, age and geographical distribution of participants are shown as follows:

Income

- 0-1500 yuan 7%
- 1500-3000 yuan 6%
- 3000-5000 yuan 7%
- 5000-10000 yuan 5%
- 10000-50000 yuan 2%
- Above 50000 1%
- 0 73%

Occupation

- Teachers 1%
- Civil servants 2%
- Migrant workers 2%
- Entrepreneurs 2%
- Others 5%
- Office workers 5%
- Students (computer science and related) 13%
- Students (non-computer science) 72%

Age

Education

- Primary school 0.2%
- Vocational high school 1.2%
- PhD 1.7%
- Junior high 1.7%
- Junior college 5.3%
- Master degree 7.0%
- High school 13.6%
- College 69.3%

- ≤ 10
- 10~55
- 55~100
- 100~145
- > 145

Editor's Notes

Over the past month, our team, composed of members from different provinces and ethnic groups and with multidisciplinary backgrounds and foundations, strived to finish this pre-research together. During the process, two members attended the National College Entrance Examination, while some others were busy preparing for their final exams. Though in a bustle, we managed to move forward from questionnaire design to the release of the first batch of data and then to data analysis. With a few interesting conclusions drawn from scratch, we have depicted an outline, unclear and immature though, of "AI and its risks and governance from the perspective of Chinese youth." Despite limited knowledge, capability and time, we are greatly inspired by these preliminary results.

We really appreciate the support and help from the Center for International Security and Strategy of Tsinghua University in this process. We would also like to extend our sincere gratitude to those who assisted us in delivering questionnaires. Besides, we do welcome criticisms and guidance on our immature preliminary conclusions from teachers and students. We hope that, one day in the future, we can conduct research on AI and its risks and governance in a comprehensive and systematic manner. There is still a long way to go.

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Pre-Research Report:
Risks and Governance of AI from the
Perspective of Chinese Youth

0. Introduction

Since neural networks made breakthroughs in the field of image recognition in 2012[1], artificial intelligence (AI) technology, represented by deep learning, has aroused a new technology wave following the internet. In recent years, AI technology has yielded brilliant results in areas such as speech recognition, machine translation, face recognition and automatic driving, attracting the wide attention. China, as an emerging economy where AI technology is industrialized, has paid extensive attention to this technology. Here is a comparison: according to Google Trends, the global impacts of AI technology are overshadowed by those of internet technology; according to Baidu Index, however, Chinese netizens have paid more attention to AI than internet technology.
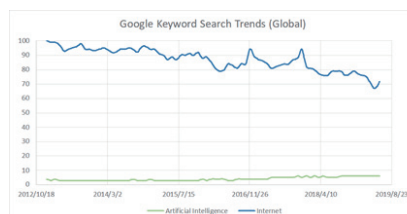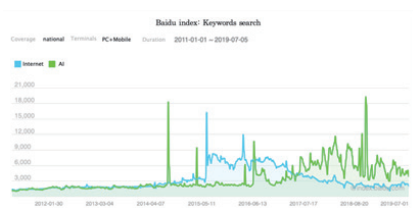
Algorithm description: taking netizens' search volume on Baidu as databases and keywords as statistic objects, this report scientifically analyzes and calculates the weighted search frequency of each keyword in baidu.com. Based on different data sources, the search index is divided into PC search index and mobile phone search index.

While bringing a technological revolution, AI technology has also come with new risks and governance problems. Since AI gives the freedom of policymaking, once the privilege of human beings, to machines, the original systems, ethics and legislation have faced unprecedented challenges in AI-oriented management, regulation and governance. [2] [3] [4] [5]

On January 20, 2016, the driver of a Tesla car was killed in Handan, China along the Beijing–Hong Kong–Macau Expressway when the car crashed into a street sweeper in front. As the first fatal crash caused by automatic driving, this case brought the public attention to the risk and liability issues in automatic driving. [6] In 2016, Cambridge Analytica collected data of millions of Facebook users for political advertising in the US presidential election that year, which led to a "technological storm." [7] AI technology, no longer a pure research subject in the academia, has exerted profound impacts on politics, economy, industry, culture and personal life. How to coordinate the development and governance of AI technology to ensure its safety and reliability and to promote the sustainable social, economic and ecological development? This should be a common concern and goal of all walks of life. As the future owners of their homeland, the youth should also pay close attention to the opportunities and risks brought by AI.

AI has always developed along with drastic social changes. Like two sides of the coin, while providing convenience for the human society, AI also brings risks, which has gradually attracted attention of different groups all over the world. The existing researches on AI focus on different aspects: applications and challenges of AI on government administration and social governance; roles played by AI in medical treatment, education and social interaction in the information age; status of females and minority groups improved by AI; as well as stakeholders' control of rules and the game between the public and them from the perspective of traditional conflict theory.

Nevertheless, few researches have analyzed how the general public, especially the youth in China where AI industrialization leads the world view AI and its risks and governance. How do the Chinese young people nowadays, a generation who will live with social system changes brought by AI technological revolution for so long, think about AI development? Will they worry about the potential risks brought by AI technology? How do they reflect on the governance of AI technology and industry? These key questions concerning policy direction and design urgently need to be answered and analyzed.

However, due to lack of basic information on Chinese youth's views on AI and its risks and governance, this research starts with a pre-research to provide reference and support for questionnaire design, sampling design and data analysis in further large-scale and systematic research.

Through questionnaires, this report collects research data from young people aged between 14 and 28 in China. Taking their gender, age, educational background, occupation, income and geographical distribution into consideration, this report conducts a pre-research on young people's application of AI in daily life, the potential risks brought by AI in various aspects, and methods to prevent and govern such potential risks, and implements a preliminary research based on the pre-research data. This report attempts to show how Chinese youth respond to the potential risks brought by AI in the ever-changing society, and to present their conceptions of AI governance.

This report is divided into five parts: Part I shows Chinese youth's evaluation and views on the impacts of AI; Part II focuses on the risks brought by AI that Chinese youth concern; Part III introduces Chinese youth's reflection on who and how to govern AI technology; Part IV compares the different concerns over AI governance between Chinese

youth and the international academia; and Part V summarizes the research in a comprehensive manner.

I. Overall Evaluation on AI of Chinese Youth

1.1 AI has penetrated and facilitated Chinese Youth's Life

According to the valid questionnaires collected, there is one word that can describe the most intuitive feeling of Chinese youth for AI development — convenience. This is inseparable from the fact that AI has penetrated every aspect of Chinese youth's life. With the widespread use of smart phones, Chinese youth have more or less used such applications as voice assistants (78.05%), fingerprint identification (76.82%), recommender systems (72.13%), smart input methods (69.54%), translation software (62.15%) and beauty cameras (56.29%). Thus, when participants are asked to describe their impressions on AI in Chinese characters, most of them choose "convenience" (Fig. 1).
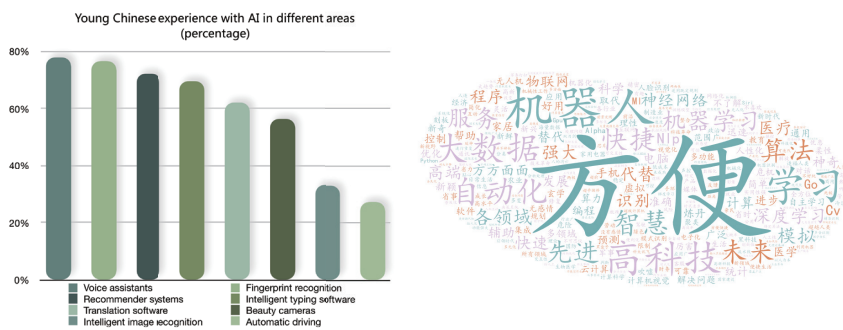

Fig. 1 AI Technology Used by Chinese Youth in Daily Life and Their Overall Impressions on AI

However, it is noticeable that more descriptions are objective focusing on technology and function, etc. than on personal feelings and values.

1.2 Chinese youth pay close attention and respond positively to AI technology (a comparison between China and the US and emotion analysis score)

With a view to analyzing Chinese youth's emotions and reactions toward AI, this research invites participants to comment on AI development. Through analysis, it is obvious that the score of positive attitude toward AI development is higher than that of negative attitude, and is more evenly distributed (Fig. 2). This indicates that most young people are positive toward AI development. The huge potential of AI also encourages Chinese youth to hold a relatively positive attitude toward its development at this stage.
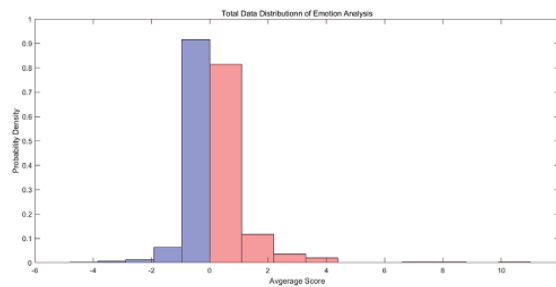
Fig. 2 Distribution of Emotion Analysis Score on AI of Chinese Youth

Through cross-over analysis, findings are as follows:

1. Young people of different ages show different attitudes toward AI: those who are going to take National College Entrance Examinations or have just entered universities or colleges (aged between 17 and 19) are more positive toward AI, while those who have received higher education (aged between 20 and 22) are more focusing on the negative sides of AI.

2. In terms of geographical distribution in China, no obvious regularity is found as regard to the attitude of young people toward AI, which may result from the questionnaire delivery. Besides, in the present society, there is no evident distinction between males and females in China when they

comment on AI technology.

3. Among all the occupations taken by young people, university students, the most educated group, have always been mindful of the potential risks brought by AI development, and they, no matter for or against AI technology, play a dominant role in this aspect.

4. Meanwhile, young people in Jilin, Guizhou and Anhui provinces score highly in both positive (left) and negative (right) emotion analysis (Fig. 4). However, further analyses and researches are needed to demonstrate whether differences in geographical distribution are related to industrial structures of the regions concerned — for instance, Guizhou Province is a region where the cloud industry and the data industry develop most rapidly in China.
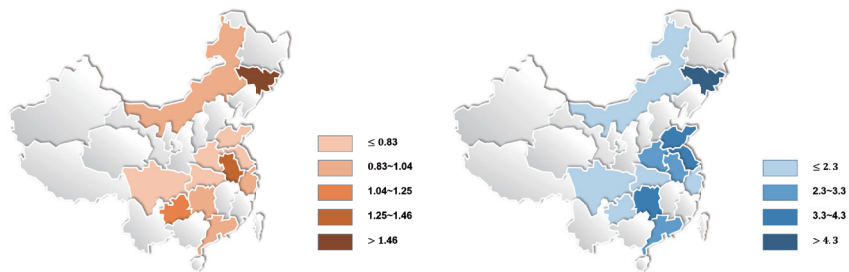
1.3 Chinese youth's attitudes toward AI: positive in the microcosmic sense VS conservative in the macroscopic sense

The questionnaire investigates how young people view the impacts of AI on four different aspects: personal life, social order, national security and international situation. It is found that **80% of young people believe that AI technology has more advantages than disadvantages with regard to personal life; however, only 40% of them think that AI technology carries more weight than disadvantages when it comes to national security and international situation (Fig. 3).** In terms of the advantageous

and disadvantageous impacts of AI on different aspects, most of them hold that AI technology does more good than harm in personal life (79%) and social order (62%); when it comes to such macroscopic and overwhelming aspects as national security and international situation, however, they tend to be more conservative, and the number of whom remain neutral increases from 19% (in "personal life") and 31% (in "social order") to 46% (in "national security") and 52 (in "international situation").
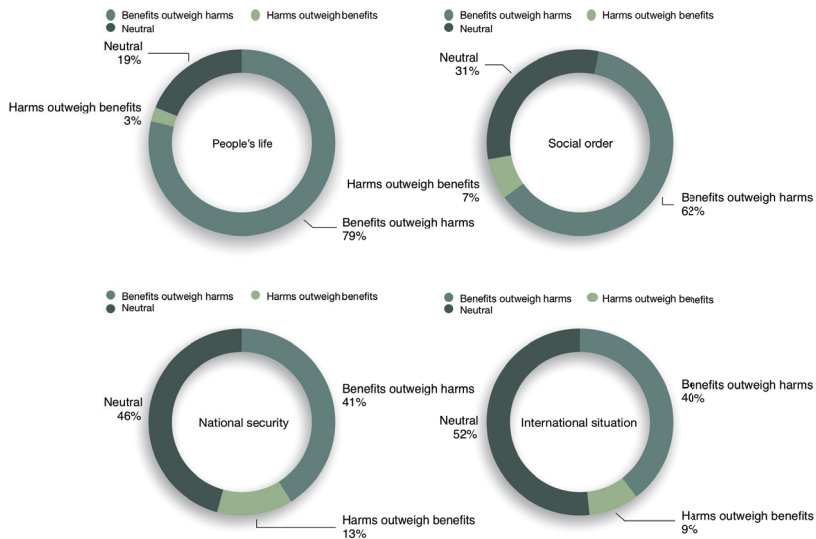

Fig. 3 Young People's Views on Impacts of AI on Personal Life, Social Order, National Security and International Situation

The questionnaires specifically differentiate between students majoring in computer science and in non-computer science to compare their views on the above-mentioned aspects. According to the results, **young people majoring in computer science are more optimistic toward AI on national security than those majoring in non-computer science.** It is likely that AI development and other related fields of information and computing science have made young people majoring in computer science more confident that negative effects of AI technology can be controllable.
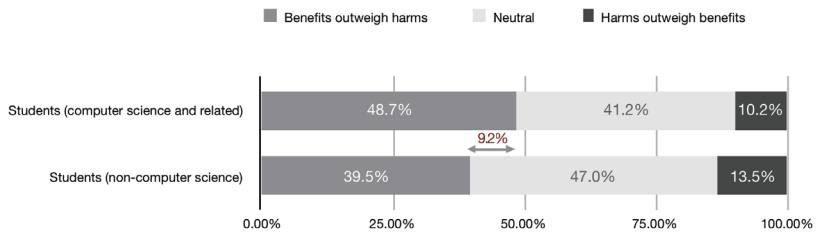
Fig. 4 Different Views on Impacts of AI between Young People with Computer Science-Related Majors and with Non-Computer Science Majors

II. AI Risks and Governance Issues that Chinese Youth Concern Most

2.1 Chinese youth are more concerned about economic and social risks brought by AI

Do Chinese youth notice the potential risks caused by AI in every aspect of social life besides the convenience? What fields do they concern the most? According to the data collected, most Chinese young people are more concerned about the impacts of AI on economic and social fields, especially the potential unemployment (51.97%), invasion of privacy and ethics (42.85%), and crimes (31.94%).

What Chinese youth concern are those fields closely related to their own development, especially the employment in the future. With the impacts of AI development on future occupations, such occupations as factory process worker (61.10%), customer service/telemarketing personnel (51.48%), and driver/postman/courier (42.85%) have been regarded as "high-risk occupations" by the youth, and are very likely to vanish as AI technology develops. AI development has gradually become a factor that causes career anxiety among Chinese young people, most of whom (84%) believe that AI development will cause some occupations in our society to vanish.
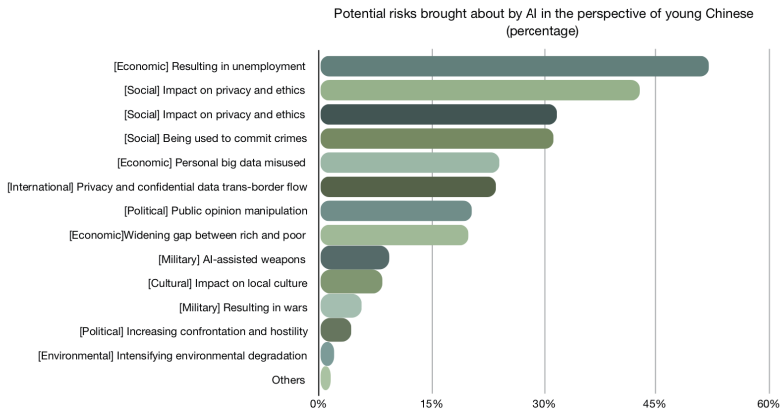
Potential risks brought about by AI in the perspective of young Chinese (percentage)

[Economic] Resulting in unemployment	
[Social] Impact on privacy and ethics	
[Social] Impact on privacy and ethics	
[Social] Being used to commit crimes	
[Economic] Personal big data misused	
[International] Privacy and confidential data trans-border flow	
[Political] Public opinion manipulation	
[Economic]Widening gap between rich and poor	
[Military] AI-assisted weapons	
[Cultural] Impact on local culture	
[Military] Resulting in wars	
[Political] Increasing confrontation and hostility	
[Environmental] Intensifying environmental degradation	
Others	

0%   15%   30%   45%   60%

Fig. 4 Risks Brought by AI that Chinese Youth Concern Most

Will AI disappear occupations?

Occupations that may be disappeared

Factory workers
Customer service
Drivers
Accountants
Craftsmen
Managers
Nurses
Policemen
Engineers
Lawyers
Senior executives
Artists
Researchers
Entrepreneurs

AI will disappear some occupations 84%

AI will disappear no occupations 16%

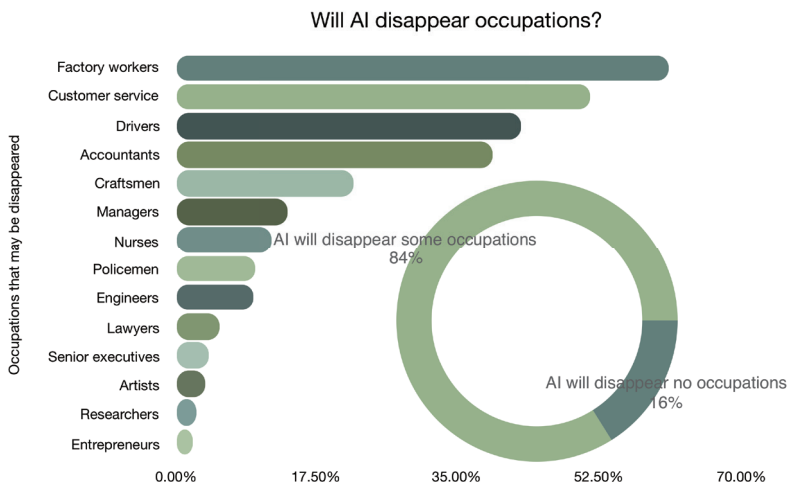0.00%   17.50%   35.00%   52.50%   70.00%

Fig. 5 Occupations to Vanish Due to AI Technology in Chinese Youth' Minds

It is noticeable that the youth in samples are also quite concerned about the risks in privacy and ethics brought by AI. Meanwhile, a great majority of them are worried that AI may be used in crimes. Many young people also maintain a relatively high level of vigilance against the use of AI in manipulating the markets.

What are the attitudes of entrepreneurs (29 people) and workers (24 people), the two representative groups among young people closely related to AI technology besides students, toward the risks and governance of AI? Though short of enough data about these two groups, the comparisons among existing samples remind us, to some extent, that different occupations can lead to different views on risks and governance of AI. In view of the potential risks brought by AI, more than half of the workers and entrepreneurs are worried that AI may lead to the unemployment; moreover, entrepreneurs, a group in close contact with modern information technologies, are more worried about the polarization between the rich and the poor than workers. However, regardless of their occupations, these two groups share the same view on the occupations that may vanish as AI technology develops, which is consistent with the overall data trend: the labor-intensive and repetitive jobs are more vulnerable to be affected. **In view of AI governance, workers (66.67%) anticipate more than entrepreneurs (48.24%) that the country and government can pass laws for strict regulations,** which, to some degree, shows that traditional industries are not confident to deal with the potential risks brought by AI and hope for a smooth transition with the help of the country and government.

However, it is worth mentioning that entrepreneurs and workers in our samples, coming from different provinces in China, are not evenly distributed geographically. While most workers hold bachelor's degrees or college degrees, entrepreneurs are more inclusive in educational backgrounds, covering almost all groups from junior high school graduates to Ph.D. students. Moreover, the proportion of female entrepreneurs is lower than that of female workers, and some entrepreneurs have no income while workers have steady monthly incomes. In terms of AI experience in daily life, there is no obvious difference in the services they obtain thanks

to the widespread use of smart phones. The above-mentioned differences, unfortunately, make our comparative analysis of entrepreneurs and workers applied to the investigated groups only.
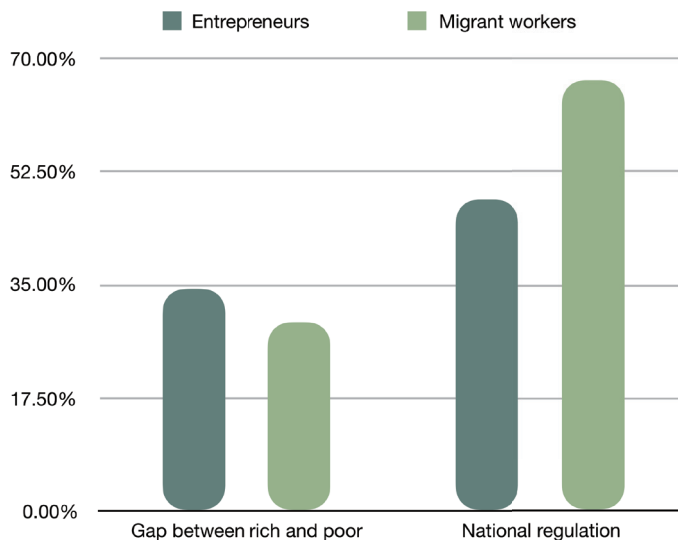

Fig. 6 Differences of Concerns between Entrepreneurs and Workers about Risks Brought by AI

2.2 Political and global AI governance issues that Chinese youth worry about: cross-border data flows and manipulation of public opinion

In the political and global fields, what Chinese youth worry about most are cross-border data flows (24.17%) and manipulation of public opinion (23.43%), which are similar to the results of Google Scholar Metrics (absolute value), where manipulation of public opinion ranks the second with an index of 19.92%. On the one hand, since the precise algorithm lowers the costs of screening media information online, the concern about manipulation of public opinion, no matter in the global sense or among young people, has become an overwhelming social emotion. Therefore, against the backdrop of rapid AI development, how to properly regulate and define the functions and powers of AI technology and how to enhance

citizens' sense of security toward information sources have become urgent problems waiting to be solved. On the other hand, the attention of Chinese youth paid to data and public opinion also indicates that all kinds of invisible mental and emotional needs are important indicators to evaluate AI, this fresh thing, in addition to substantial economic dividends. Thus, how to balance and coordinate these two aspects is quite essential to reconcile the contradictions in the process of technological revolution.

III. AI Governance that Chinese Youth Accept: Legalization and Active Government
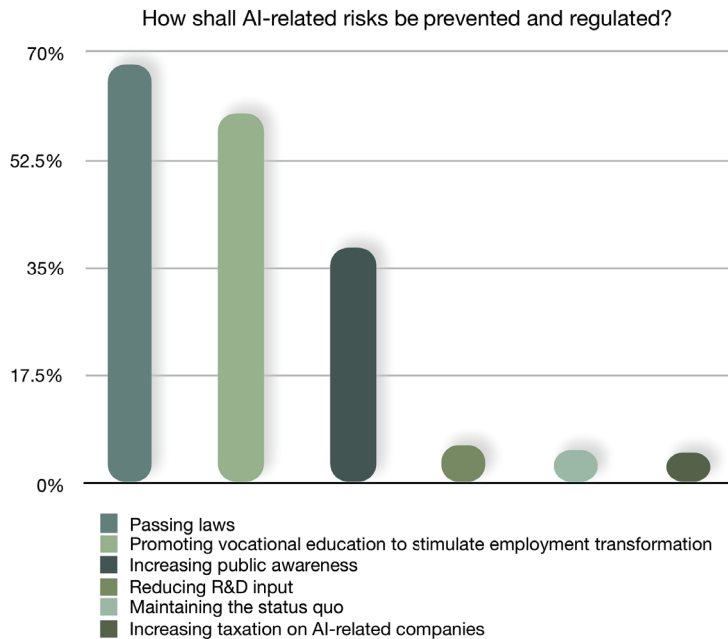

Fig. 7 Measures for AI Governance in the Youth's Minds

As for how to deal with and prevent the possible changes brought by AI, Chinese young people apparently have their own views. Most of them (67.82%) hope that the country and government can strictly regulate AI development by law. They also worry about the unemployment possibly caused by AI development, 60.11% of whom investigated regard promoting occupational education and transformation as significant means to reduce the risks brought by AI. However, the youth do not appreciate such economic regulations as cutting R&D investment and increasing taxes on relevant enterprises. According to them, the "invisible hand" of markets is far less reliable than the "visible hand" of the country and government in AI risk prevention.

IV. International Academia VS Chinese Youth: Similarities and Differences of Concerns

By comparing the research results and Google Scholar Metrics (absolute value), it is obvious that despite some similarities of AI risks concerned by Chinese youth investigated and the international academia, there are also many differences in this regard.

Similarities: it is undeniable that both the top scholars in the international academica and Chinese youth of different ages and various educational backgrounds share that the emergence and development of AI are bound to have profound impacts on the era we live in. In this sense, it is necessary to conduct research on AI governance and potential risks brought by it, which is also consistent with the goal of future youth development.

Differences: based on the literature review in the international academia

and questionnaires collected from Chinese youth, it is easy to find out that there are some differences of issues that the two groups focus on, which are mainly shown in the following aspects:

When it comes to the groups affected by AI technology, the international academia views from a more specific perspective while Chinese young people from a more macroscopic perspective. According to the international scholars, both gender and complexion may be the factors that exert various potential impacts, so the attention they pay to some groups may differ from one another. [8] [9] As for Chinese youth, however, they tend to think about this issue with a macroscopic and holistic view, studying and analyzing the potential impacts of AI technology on all human beings.

When it comes to the fields affected by AI technology, **international scholars tend to pay more attention to international politics and environment, while Chinese youth focus on society, life and other aspects.** It is easy to find out from literature that among the forefront researches on AI technology conducted by the international academia, scholars often focus on international politics, environment and other fields. According to them, the potential risks brought by AI, be it in presidential election or automatic driving technology, are one major factor that should not be neglected. Based on the data, scholars are concerned that AI development may cause problems related to international politics and environment such as wars (22.48%), manipulation of social public opinion (19.92%) and aggravation of environmental degradation (14.16%). In comparison, Chinese young people care more about the impacts of AI technology on life and society, including unemployment, ethics and crimes.

When it comes to the attitude toward AI technology, international scholars are more negative and tend to exaggerate the negative impacts of AI, while Chinese youth are more optimistic (yet with more aspects

taken into consideration, they tend to be conservative.) In the global sense, any incident caused by AI will be infinitely amplified, which brings social doubts on AI technology itself. In China, however, young people who live with AI technology are more optimistic. They can experience all kinds of convenience brought by AI technology to life, and when facing the potential risks, they also show a positive attitude. Yet with more aspects considered in evaluation, Chinese youth tend to be conservative toward AI technology.
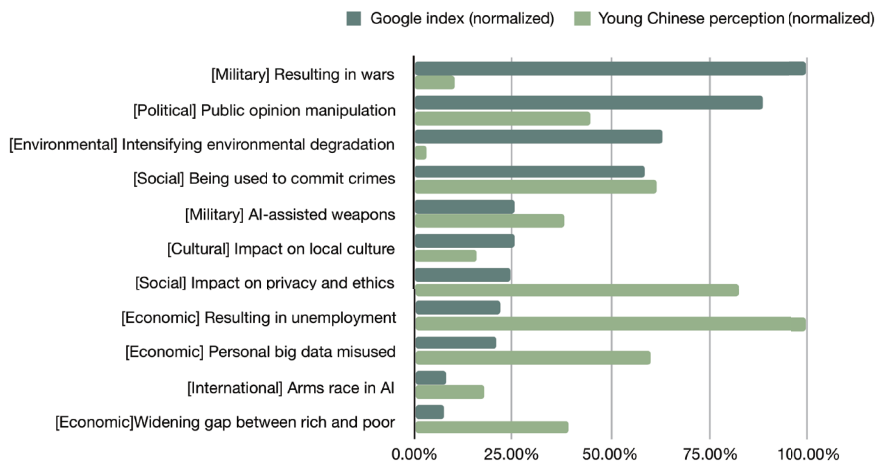

Fig. 8 Differences between Academic Research Focus and Chinese Youth's Concerns

V. Summary and Outlook

"The future of China belongs to the youth, and the future of the Chinese nation also belongs to the youth," General Secretary Xi Jinping said in a speech when visiting China University of Political Science and Law on May 3, 2017. On May 2, 2018 at a symposium with teachers and students from Peking University, he also mentioned, "Every generation of

young people has their own opportunities and luck." With the continuous development and popularization of AI technology, young people in the new era should grasp every opportunity. While enjoying the convenience brought by AI, it is also needed to pay attention to the potential risks, especially possible negative impacts on personal life and social order. Therefore, it makes sense that young people care a lot about economy and social life closely related to themselves. Meanwhile, Chinese youth, shouldering the future of China and the Chinese nation, should not only cultivate themselves well but also defend against the possible threats brought by AI along with the country and government and make contributions to AI governance.

On September 25, 2015, the UN Sustainable Development Summit was held at the United Nations Headquarters in New York. A total of 17 Sustainable Development Goals were officially adopted by 193 member states at the Summit, aiming to thoroughly solve the social, economic and environmental problems in a comprehensive manner from 2015 to 2030, and to finally achieve sustainable development, which can be facilitated by the increasingly thriving AI technology. Through processing and analysis of massive data, AI technology is beneficial to ensuring healthy lifestyles and promoting the well-being of people of all ages. Besides, the global sharing of inclusive and fair quality education cannot be achieved without AI, which provides diversified means and plays a part in integration in educational practice. At the same time, despite Chinese youth's evident worries about impacts of AI on occupations, it is needed to notice the revolutionary role of AI technology playing in innovative industries, as well as the sustained, inclusive and sustainable economic growth on a global scale achieved therefrom. While the global climate change is a shared challenge that every citizen around the world must face, the continuous development of AI technology will provide more alternative

solutions to its governance, which can help deepen our understanding of the climate and the earth system. With regard to the protection of aquatic and terrestrial organisms, AI technology also plays an irreplaceable role in the establishment of global observation and early warning mechanisms. In summary, the extension and deepening of AI on a global scale is conducive to reinvigorating the sustainable development partnership among countries in global governance and ultimately realizing justice and peace all over the world!

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